

## CLAIMS

1. (Currently Amended) A method of modulating at least one photosensitive trait in a plant comprising altering the level of phytochrome and flowering time 1 (PFT1) protein in a plant, wherein said PFT1 protein is encoded by a nucleotide sequence hybridizing to SEQ ID NO: 2 under stringent wash conditions or has an amino acid sequence at least 45% identical to SEQ ID NO: 3.

2. (Original) The method of claim 1, wherein the photosensitive trait is flowering time, shade avoidance syndrome, stem elongation or leaf number.

3. (Original) The method of claim 1, wherein said PFT1 protein has the amino acid sequence set forth in SEQ ID NO. 3 or conservative variants thereof.

4. (Original) The method of claim 1, wherein the level of PFT1 protein is altered by producing a plant having an expression vector having a gene encoding the PFT1 protein.

5. (Original) The method of claim 4, wherein the gene encoding the PFT1 protein has a nucleotide sequence that encodes the amino acid sequence set forth in SEQ ID NO. 3 or conservative variants thereof.

6. (Original) The method of claim 4, wherein the gene encoding the PFT1 protein has the nucleotide sequence set forth in SEQ D NO. 2.

7. (Currently Amended) A method of modulating a photosensitive trait in a plant, comprising:

transforming a plant cell with an expression vector comprising a gene that encodes a PFT1 protein wherein said PFT1 protein is encoded by a nucleotide sequence hybridizing to SEQ ID NO: 2 under stringent wash conditions or has an amino acid sequence at least 45% identical to SEQ ID NO: 3; and

growing said plant cell into a plant under conditions that allow the expression of the PFT1 protein thereby modulating a photosensitive trait.

8. (Original) The method of claim 7, wherein the PFT1 protein is overexpressed in said plant.

9. (Original) The method of claim 7, wherein the PFT1 protein is encoded by a gene comprising the nucleotide sequence shown in SEQ ID NO: 2.

10. (Original) The method of claim 7, wherein the expression vector comprises a promoter selected from the group comprising a constitutive promoter and an inducible promoter.

11. (Original) The method of claim 7, wherein the plant is selected from the group consisting of: wheat, barley, rye, oat, flax, millet, corn, tomato, rice and tobacco plants.

12. (Original) The method of claim 7, wherein the photosensitive trait is a trait selected from the group consisting of: flowering time, leaf number, stem elongation, and red/far red response.

13. (Currently Amended) A method of claim [[13]] 12, wherein the photosensitive trait is flowering time, and said flowering time is decreased.

14. (Currently Amended) A method of modulating a photosensitive trait in a plant comprising: contacting a plant cell, or plant, with an inhibitor of a PFT1 gene, wherein said PFT1 gene has a nucleotide sequence that hybridizes to SEQ ID NO: 2 under stringent wash conditions or encodes a protein with an amino acid sequence at least 45% identical to SEQ ID NO: 3, such that expression of the PFT1 gene is reduced compared to a plant not contacted with the inhibitor.

15. (Original) The method of claim 14, wherein the PFT1 gene comprises the nucleotide

sequence shown in SEQ ID NO: 2.

16. (Original) The method of claim 14, wherein the inhibitor comprises an expression vector expressing a protein that inhibits expression of the PFT1 gene.

17. (Original) The method of claim 14, wherein the plant is selected from the group consisting of: wheat, barley, rye, oat, flax, millet, corn, tomato, rice and tobacco plants.

18. (Original) The method of claim 14, wherein the inhibitor comprises an antisense molecule that inhibits the PFT1 gene.

19. (Original) The method of claim 14, wherein inhibitor comprises a short interfering RNA (siRNA) configured to inhibit the production of a PFT1 gene product.

20. (Original) The method of claim 14, wherein the photosensitive trait is a trait selected from the group consisting of: flowering time, leaf number, stem elongation, shade avoidance syndrome and red/far red response.

21. (Original) The method of claim 20, wherein the photosensitive trait is flowering time, and said flowering time is increased.

22. (Original) The method of claim 20, wherein the photosensitive trait is shade avoidance syndrome, and said plant exhibits a depressed shade avoidance syndrome.

23. (Currently Amended) A transgenic plant having at least one modulated photosensitive trait as compared to a wild-type plant, wherein the transgenic plant comprises a recombinant expression vector that expresses a nucleic acid encoding a PFT1 gene, wherein said PFT1 gene has a nucleotide sequence that hybridizes to SEQ ID NO: 2 under stringent wash conditions or encodes a protein with an amino acid sequence at least 45% identical to SEQ ID NO: 3.

24. (Original) The transgenic plant of claim 23, wherein the PFT1 gene is overexpressed.
25. (Original) A recombinant nucleic acid sequence comprising SEQ ID NO:2.
26. (Original) A recombinant nucleic acid sequence comprising a nucleotide sequence encoding SEQ ID NO:3.
27. (Original) A recombinant nucleic acid sequence hybridizing to SEQ ID NO:2 under stringent wash conditions.
28. (Currently Amended) A recombinant nucleic sequence comprising a nucleotide sequence encoding a protein at least 45% identical to SEQ ID NO:3.
29. (Currently Amended) A transgenic plant ~~comprises~~ comprising a recombinant expression vector that expresses the recombinant nucleic acid sequence of claims 25, 26, 27, or 28.
30. (Original) The transgenic plant of claim 29, wherein the recombinant nucleic acid sequence is overexpressed.
31. (Currently Amended) The transgenic plant of claim ~~28~~ 29, wherein the recombinant nucleic acid sequence is operably linked to a promoter.
32. (Original) The transgenic plant of claim 31, wherein the promoter is selected from the group comprising a constitutive promoter and an inducible promoter.
33. (Original) The transgenic plant of claim 29, wherein the plant is selected from the group consisting of: wheat, barley, rye, oat, flax, millet, corn, tomato, rice and tobacco plants.

34. (Original) A seed derived from the transgenic plant of claim 29.

35. (Original) A plant tissue derived from the transgenic plant of claim 29.

36. (Original) The plant tissue of claim 35, wherein said tissue is a flower.

37. (Currently Amended) An isolated protein ~~comprising SEQ ID NO: 3~~ encoded by a nucleotide sequence hybridizing to SEQ ID NO: 2 under stringent wash conditions or having an amino acid sequence at least 45% identical to SEQ ID NO: 3.

38. (Currently Amended) A recombinant nucleic acid molecule encoding a PFT1 protein produced from the method comprising:

providing nuclear material from a plant; and

isolating from said nuclear material a recombinant nucleic acid molecule encoding a PFT1 protein, wherein said PFT1 protein is encoded by a nucleotide sequence hybridizing to SEQ ID NO: 2 under stringent wash conditions or has an amino acid sequence at least 45% identical to SEQ ID NO: 3.